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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/034,039	12/31/2001	Marshall L. Nuckols	83,373	9515

7590 07/22/2005

COASTAL SYSTEMS STATION
DAHLGREN DIVISION
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EXAMINER

JASTRZAB, KRISANNE MARIE

ART UNIT PAPER NUMBER

1744

DATE MAILED: 07/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/034,039

Applicant(s)

NUCKOLS ET AL.

Examiner

Krisanne Jastrzab

Art Unit

1744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-2 and 4-19 are rejected under 35 U.S.C. 103(a) as being obvious over Nuckols et al., U.S. patent No. 6,463,925 B2 in view of Jenkins et al.

The applied reference has a common pair of inventors with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(I)(1) and § 706.02(I)(2).

Nuckols et al., teach method and apparatus for heating and humidifying a diver's breathing air by utilizing a portion of the oxygen therein. A sample of the breathing gas is taken and supply to a mixing means where it is mixed with hydrogen. The mixture is then contacted with a catalyst, preferably palladium or platinum, such that an exothermic reaction occurs, lessening the oxygen concentration and producing water

vapor. See column 3, lines 30-38, column 4, lines 46-68 and column 5, lines 5-15 and lines 25-40 and column 7, lines 38-45.

Jenkins et al., teach application of the same type of reaction to control the amount of oxygen in an atmospheric sample while monitoring the concentration of the oxygen to ensure an accurate and efficient reaction to remove that oxygen from the atmosphere. Jenkins et al., teach a method and apparatus for removing oxygen from an atmosphere such that it's presence won't affect the detection of other trace materials in the atmosphere. A sample of the oxygen-containing atmosphere is drawn in to area of the apparatus and is mixed with pure hydrogen. The mixture is then passed to a catalyst such as platinum or asbestos-supported palladium, where it is reacted to from heat and water vapor. Both the oxygen and hydrogen concentrations are monitored and the flow parameters adjusted accordingly. Pressure is also regulated to ensure efficient completion of the reaction and oxygen removal thereby. See column 2, line 54 through column 3, line 15.

It would have been obvious to one of ordinary skill in the art to employ sensing/detection means for oxygen concentration in the system of Nuckols et al., as taught in Jenkins et al., in order to ensure the occurrence of an accurate and efficient reaction.

With respect to claims 4 and 17, Nuckols et al., teach the use of less than about 1% of hydrogen in the gas mixture (column 6, lines 15-16).

With respect to claims 7 and 13, Nuckols et al., teach the same molar ratio as instantly claimed (see column 5, lines 29-31).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nuckols et al., together with Jenkins et al., as applied to claims 1-2 and 4-19 above, and further in view of Golben U.S. patent No. 6,508,866 B1.

Golben teaches the known and expected use of a metal hydride material as a containment source for hydrogen for supply thereof to a variety of apparatus requiring a source of hydrogen. See column 2, lines 37-50, column 3, lines 20-25 and column 7, line 52 through column 8, line 10.

It would have been well within the purview of one of ordinary skill in the art to employ a hydrogen source such as that, well recognized and taught in Golben, in the system of the combination above because it optimally provides a purified source of hydrogen with safe containment means.

Response to Arguments

Applicant's arguments filed 5/9/2005 have been fully considered but they are not persuasive.

Applicant argues that Jenkins fails to control the mixing of hydrogen and source gas based on a sensed threshold oxygen level as now claimed, however, the Examiner would disagree. Jenkins clearly teaches that a sensed oxygen concentration must be present to supply correct ratios for the efficient completion of the catalytic reaction, and that the reaction is not in fact necessary if the oxygen content is not sensed thus control of the mixing is clearly hinged upon oxygen concentration.

Applicant also argues that Nuckols is not a closed system that returns breathable gas from the catalytic reaction back into the closed environment. The Examiner would disagree and point out that Nuckols gives different application embodiments, including a closed environment with return of a breathable gas to a diver's gas source. See column 4, lines 47-68, column 5, lines 5-15 and column 7, lines 38-45.

Applicant also argues that Nuckols is not concerned with concentration for control, however, the Examiner would disagree and point out that Nuckols refers to automated control and it is well held that specific ratios of the component gases are required for the catalytic reaction to occur.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krisanne Jastrzab whose telephone number is 571-272-1279. The examiner can normally be reached on Mon.-Wed. 6:30am-4:00pm and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Kim can be reached on 571-272-1142. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Krisanne Jastrzab
Primary Examiner
Art Unit 1744

July 21, 2005